

**LAM SIA #4 Review****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

**What is the degree of each monomial?**

- \_\_\_\_\_ 1.  $7m^6n^5$   
a. 5                      b. 11                      c. 6                      d. 7
- \_\_\_\_\_ 2.  $3x^8y^4$   
a. 3                      b. 8                      c. 12                      d. 4
- \_\_\_\_\_ 3.  $5x^7$   
a. 5                      b. 35                      c. 7                      d. 12
- \_\_\_\_\_ 4.  $-9$   
a.  $-8$                       b. 0                      c.  $-10$                       d.  $-9$

**What is the sum or difference?**

- \_\_\_\_\_ 5.  $6x^7 + 8x^7$   
a.  $14x^7$                       b.  $-2x^7$                       c.  $14x^{14}$                       d.  $48x^7$
- \_\_\_\_\_ 6.  $3x^8 - 7x^8$   
a.  $-4x^{16}$                       b.  $-21x^8$                       c.  $-4x^8$                       d.  $10x^8$
- \_\_\_\_\_ 7.  $6y^5 - 9y^5$   
a.  $-3y^{10}$                       b.  $15y^5$                       c.  $-54y^5$                       d.  $-3y^5$

**Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.**

- \_\_\_\_\_ 8.  $2 - 11x^2 - 8x + 6x^2$   
a.  $-5x^2 - 8x + 2$ ; quadratic trinomial  
b.  $-5x^2 - 8x$ ; quadratic binomial  
c.  $-6x^2 - 8x - 2$ ; cubic polynomial  
d.  $6x^2 - 8x + 2$ ; cubic trinomial
- \_\_\_\_\_ 9.  $7g - 8g^3 + 5g^2 - 2$   
a.  $8g^3 - 5g^2 + 7g - 2$ ; cubic polynomial  
b.  $-2 + 7g + 5g^2 - 8g^3$ ; cubic binomial  
c.  $5g^3 - 8g^2 + 7g - 2$ ; quadratic binomial  
d.  $-8g^3 + 5g^2 + 7g - 2$ ; cubic trinomial

- \_\_\_\_\_ 10.  $9x + 5x^4 - 5$
- a.  $5x^4 + 9x - 5$ ; fourth-degree trinomial
  - b.  $5x^4 + 9x - 5$ ; cubic binomial
  - c.  $9x + 5x^4 - 5$ ; quadratic monomial
  - d.  $9x - 5 + 5x^4$ ; not a polynomial

**Simplify the sum.**

- \_\_\_\_\_ 11.  $(8u^3 + 2u^2 + 7) + (3u^3 - 7u + 8)$
- a.  $5u^3 - 7u^2 + 2u - 15$
  - b.  $11u^3 + 2u^2 - 7u + 15$
  - c.  $15 - 7u + 2u^2 + 11u^3$
  - d.  $5u^3 + 2u^2 - 7u + 15$

**Simplify the difference.**

- \_\_\_\_\_ 12.  $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$
- a.  $2x^4 + 2x + 8$
  - b.  $-14x^4 + 10x + 10$
  - c.  $-14x^4 - 10x + 10$
  - d.  $2x^4 + 2x + 10$
- \_\_\_\_\_ 13.  $(2w^2 - 4w - 8) - (5w^2 + 3w - 2)$
- a.  $7w^2 - w - 10$
  - b.  $7w^2 + 7w + 6$
  - c.  $-3w^2 - 7w - 6$
  - d.  $-3w^2 - w - 10$

**Simplify the product.**

- \_\_\_\_\_ 14.  $2n(n^2 + 3n + 4)$
- a.  $2n^3 + 6n^2 + 8n$
  - b.  $2n^3 + 3n + 4$
  - c.  $2n^3 + 6n + 8$
  - d.  $n^2 + 5n + 4$
- \_\_\_\_\_ 15.  $5a^2(3a^4 + 3b + 2)$
- a.  $8a^4 + 8ab + 5a^2$
  - b.  $15a^8 + 3b + 10a^2$
  - c.  $15a^6 + 15a^2b + 10a^2$
  - d.  $8a^6 + 15a^2b + 5a^2$
- \_\_\_\_\_ 16.  $8p(-3p^2 + 6p - 2)$
- a.  $-5p^3 + 14p^2 - 6p$
  - b.  $48p^2 - 16p - 24p^3$
  - c.  $14p^2 - 6p - 5p^3$
  - d.  $-24p^3 + 48p^2 - 16p$

**Find the GCF of the terms of the polynomial.**

- \_\_\_\_\_ 17.  $30x^3 + 16x^5$
- a.  $16x$
  - b.  $2x^3$
  - c.  $2x^5$
  - d.  $x^3$

- \_\_\_\_\_ 18.  $48x^6 + 32x^2 - 26x^5$   
a.  $x^2$                       b.  $2x^2$                       c.  $32x^2$                       d.  $2x^6$

**Factor the polynomial.**

- \_\_\_\_\_ 19.  $2x^3 + 4x^2 + 8x$   
a.  $2x(x^2 + 2x + 4)$                       c.  $2x(x^2 + 2x + 8)$   
b.  $2x(x + 2)(x + 4)$                       d.  $2x^3 + 4x^2 + 8x$
- \_\_\_\_\_ 20.  $42w^{10} + 24w^6$   
a.  $w^6(42w^4 + 24)$                       c.  $6(7w^{10} + 4w^6)$   
b.  $6w^6(7w^4 + 4)$                       d.  $6w^5(7w^5 + 4w)$
- \_\_\_\_\_ 21.  $54c^3d^4 + 9c^4d^2$   
a.  $9c^3d^2(d^2 + 6c)$                       c.  $9c^4d^2(d^2 + 6)$   
b.  $9c^3d^2(6d^2 + c)$                       d.  $9c^4d^2(6d^2 + 1)$

**Simplify the product using the distributive property.**

- \_\_\_\_\_ 22.  $(5h - 3)(3h + 7)$   
a.  $15h^2 - 44h + 21$                       c.  $15h^2 + 44h + 21$   
b.  $15h^2 - 26h - 21$                       d.  $15h^2 + 26h - 21$
- \_\_\_\_\_ 23.  $(-2h + 5)(5h - 2)$   
a.  $-10h^2 - 21h + 10$                       c.  $-10h^2 - 29h - 10$   
b.  $-10h^2 + 21h + 10$                       d.  $-10h^2 + 29h - 10$

**Simplify the product using FOIL.**

- \_\_\_\_\_ 24.  $(3x - 7)(3x - 5)$   
a.  $9x^2 + 6x + 35$                       c.  $9x^2 - 36x - 35$   
b.  $9x^2 + 36x + 35$                       d.  $9x^2 - 36x + 35$
- \_\_\_\_\_ 25.  $(4x - 4)(3x - 4)$   
a.  $12x^2 - 28x + 16$                       c.  $12x^2 + 4x - 16$   
b.  $12x^2 - 4x - 16$                       d.  $12x^2 + 28x + 16$

**What is a simpler form of the expression?**

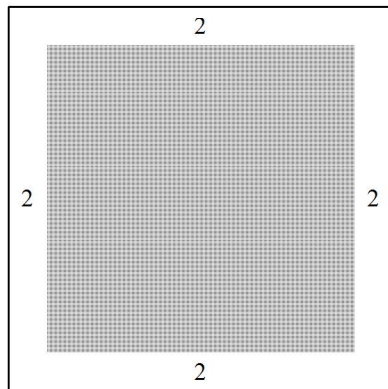
- \_\_\_\_\_ 26.  $(2n^2 + 5n + 4)(2n - 4)$   
a.  $4n^3 - 2n^2 + 28n - 16$                       c.  $4n^3 + 2n^2 - 12n - 16$   
b.  $4n^3 + 12n^2 - 2n - 16$                       d.  $4n^3 + 18n^2 - 28n - 16$

- \_\_\_\_\_ 27.  $(3k + 4)(3k^2 - 5k - 3)$
- a.  $9k^3 + 27k^2 - 11k - 12$       c.  $9k^3 + 29k^2 - 3k - 12$   
 b.  $9k^3 - 3k^2 - 29k - 12$       d.  $9k^3 - 3k^2 + 11k - 12$

**What is a simpler form of each product?**

- \_\_\_\_\_ 28.  $(2x - 6)^2$
- a.  $4x^2 - 24x + 36$       c.  $4x^2 + 36$   
 b.  $4x^2 - 8x + 36$       d.  $4x^2 - 12x + 36$
- \_\_\_\_\_ 29.  $(4x - 6y^3)^2$
- a.  $16x^2 - 24xy^3 + 36y^6$       c.  $16x^2 + 36y^6$   
 b.  $16x^2 - 48xy^3 + 36y^6$       d.  $16x^2 - 4xy^3 + 36y^6$
- \_\_\_\_\_ 30.  $(8m + 1)^2$
- a.  $64m^2 - 16m + 1$       c.  $64m^2 + 16m + 1$   
 b.  $64m^2 + 8m - 1$       d.  $64m^2 + 16m - 1$

- \_\_\_\_\_ 31. A square painting is surrounded by a frame. The outside edges of the frame are  $x$  inches in length and there is a 2-inch border between the painting and the frame. What is the total area of the border?



- a.  $8x - 16$       c.  $-8x - 16$   
 b.  $x^2 + 8x + 16$       d.  $-4x + 4$
- \_\_\_\_\_ 32. A machinist creates a washer by drilling a hole through the center of a circular piece of metal. If the piece of metal has a radius of  $x + 8$  and the hole has a radius of  $x + 2$ , what is the area of the washer?
- a.  $12\pi x + 60\pi$       c.  $x^2 + 12\pi x - 60\pi$   
 b.  $12\pi x - 60\pi$       d.  $x^2 - 12\pi x - 60\pi$
- \_\_\_\_\_ 33. What is  $51^{2^2}$ ? Use mental math.
- a. 2,500      b. 2,401      c. 2,601      d. 2,551

**What is a simpler form of the following expressions?**

- \_\_\_\_\_ 34.  $(j + 7)(j - 7)$   
a.  $j^2 + 14j - 49$  c.  $j^2 + 14j - 49$   
b.  $j^2 - 14j - 49$  d.  $j^2 - 49$
- \_\_\_\_\_ 35.  $(2n + 2)(2n - 2)$   
a.  $4n^2 - 4$  c.  $4n^2 + 2n - 4$   
b.  $4n^2 - 4n - 4$  d.  $4n^2 + 4n - 4$
- \_\_\_\_\_ 36.  $(7p - 8)(7p + 8)$   
a.  $49p^2 + 112p + 64$  c.  $49p^2 + 64$   
b.  $49p^2 - 112p - 64$  d.  $49p^2 - 64$
- \_\_\_\_\_ 37.  $(2m^2 - 4)(2m^2 + 4)$   
a.  $4m^2 - 16$  c.  $4m^4 - 16$   
b.  $4m^4 + 16$  d.  $4m^3 - 16$

**What is the factored form of the following expressions?**

- \_\_\_\_\_ 38.  $w^2 + 18w + 77$   
a.  $(w - 7)(w + 11)$  c.  $(w + 7)(w + 11)$   
b.  $(w - 7)(w - 11)$  d.  $(w + 1)(w + 77)$
- \_\_\_\_\_ 39.  $d^2 + 12d + 32$   
a.  $(d + 8)(d + 4)$  c.  $(d - 8)(d + 4)$   
b.  $(d - 8)(d - 4)$  d.  $(d + 8)(d - 4)$
- \_\_\_\_\_ 40.  $d^2 - 12d + 32$   
a.  $(d - 4)(d - 8)$  c.  $(d + 4)(d - 8)$   
b.  $(d - 4)(d + 8)$  d.  $(d + 4)(d + 8)$
- \_\_\_\_\_ 41.  $x^2 - x - 42$   
a.  $(x - 7)(x + 6)$  c.  $(x + 7)(x - 6)$   
b.  $(x + 7)(x + 6)$  d.  $(x - 7)(x - 6)$
- \_\_\_\_\_ 42.  $d^2 - 18d + 80$   
a.  $(d - 8)(d + 10)$  c.  $(d - 8)(d - 10)$   
b.  $(d + 8)(d + 10)$  d.  $(d + 8)(d - 10)$
- \_\_\_\_\_ 43.  $d^2 + 3d - 54$   
a.  $(d + 6)(d + 9)$  c.  $(d + 6)(d - 9)$   
b.  $(d - 6)(d + 9)$  d.  $(d - 6)(d - 9)$

**What is the factored form of the following expressions?**

- \_\_\_\_\_ 44.  $x^2 - 10xy + 24y^2$   
a.  $(x + 6y)(x + 4y)$  c.  $(x + 2y)(x - 12y)$   
b.  $(x - 2y)(x + 12y)$  d.  $(x - 6y)(x - 4y)$

- \_\_\_\_\_ 45.  $x^2 + 3xy - 4y^2$   
a.  $(x + 4y)(x + y)$  c.  $(x - 4y)(x + y)$   
b.  $(x - 4y)(x - y)$  d.  $(x + 4y)(x - y)$

**What is the factored form of the expression?**

- \_\_\_\_\_ 46.  $6x^2 + 5x + 1$   
a.  $(3x - 1)(2x - 1)$  c.  $(3x - 1)(2x + 1)$   
b.  $(3x + 1)(2x - 1)$  d.  $(3x + 1)(2x + 1)$
- \_\_\_\_\_ 47.  $10x^2 + 41x + 40$   
a.  $(2x + 5)(5x - 8)$  c.  $(2x - 5)(5x + 8)$   
b.  $(2x + 5)(5x + 8)$  d.  $(2x - 5)(5x - 8)$
- \_\_\_\_\_ 48.  $6x^2 + 17x + 12$   
a.  $(3x - 4)(2x + 3)$  c.  $(3x + 4)(2x + 3)$   
b.  $(3x - 4)(2x - 3)$  d.  $(3x + 4)(2x - 3)$
- \_\_\_\_\_ 49.  $15x^2 - 16xy + 4y^2$   
a.  $(3x - 2y)(5x + 2y)$  c.  $(3x + 2y)(5x - 2y)$   
b.  $(3x - 2y)(5x - 2y)$  d.  $(3x + 2y)(5x + 2y)$

**What is the factored form of the expression?**

- \_\_\_\_\_ 50.  $12d^2 + 4d - 1$   
a.  $(6d + 1)(2d + 1)$  c.  $(6d - 1)(2d + 1)$   
b.  $(6d - 1)(2d - 1)$  d.  $(6d + 1)(2d - 1)$
- \_\_\_\_\_ 51.  $8g^2 + 6g - 9$   
a.  $(4g + 3)(2g + 3)$  c.  $(4g + 3)(2g - 3)$   
b.  $(4g - 3)(2g - 3)$  d.  $(4g - 3)(2g + 3)$
- \_\_\_\_\_ 52.  $12x^2 + x - 6$   
a.  $(3x + 2)(4x + 3)$  c.  $(3x - 2)(4x + 3)$   
b.  $(3x - 2)(4x - 3)$  d.  $(3x + 2)(4x - 3)$
- \_\_\_\_\_ 53.  $15g^2 - 19gh - 56h^2$   
a.  $(3g - 8h)(5g + 7h)$  c.  $(3g + 8)(5g + 7h^2)$   
b.  $(3g + 8h)(5g - 7h)$  d.  $(3g - 8)(5g + 7)$

**What is the factored form of the expression?**

- \_\_\_\_\_ 54.  $20x^2 + 22x - 12$   
a.  $2(5x - 2)(2x + 3)$  c.  $(10x - 2)(4x + 3)$   
b.  $2(5x + 2)(2x - 3)$  d.  $2(5x + 4)(2x - 3)$

- \_\_\_\_\_ 55.  $60y^2 - 51y - 72$   
a.  $(5y + 8)(4y - 3)$  c.  $3(5y + 8)(4y + 3)$   
b.  $3(5y - 8)(4y + 3)$  d.  $(5y - 8)(12y + 9)$

**What is the factored form of the expression?**

- \_\_\_\_\_ 56.  $d^2 + 18d + 81$   
a.  $(d + 9)(d - 9)$  c.  $(d - 81)(d - 1)$   
b.  $(d + 9)^2$  d.  $(d - 9)^2$

- \_\_\_\_\_ 57.  $d^2 - 22d + 121$   
a.  $(d + 11)^2$  c.  $(d - 11)(d + 11)$   
b.  $(d - 11)^2$  d.  $(d - 121)(d - 1)$

- \_\_\_\_\_ 58. Suppose that the area of a square lawn is  $25x^2 + 40x + 16$ . What is the length of one side of the lawn?  
a.  $4x + 5$  c.  $5x - 4$   
b.  $5x + 4$  d.  $-5x + 4$

- \_\_\_\_\_ 59. Find the radius of a circle with an area of  $\pi(16x^2 + 24x + 9)$ .  
a.  $3x - 4$  b.  $9x - 16$  c.  $16x + 9$  d.  $4x + 3$

**What is the factored form of the expression?**

- \_\_\_\_\_ 60.  $r^2 - 49$   
a.  $(r - 7)(r + 7)$  c.  $(r - 7)(r - 7)$   
b.  $(r + 7)(r + 7)$  d.  $(r - 7)(r + 9)$

- \_\_\_\_\_ 61.  $s^2 - 16$   
a.  $(s - 4)(s - 4)$  c.  $(s - 4)(s + 4)$   
b.  $(s + 4)(s + 4)$  d.  $(s - 4)(s + 6)$

**What is the factored form of the expression?**

- \_\_\_\_\_ 62.  $4x^2 - 81y^2$   
a.  $(2x + 9)(2x - 9)$  c.  $(2x + 9y)^2$   
b.  $(2x + 9y)(2x - 9y)$  d.  $(2x - 9y)^2$

- \_\_\_\_\_ 63.  $k^2 - 81h^2$   
a.  $(k - 9h^2)(k + 9)$  c.  $h^2(k + 9)(k - 9)$   
b.  $(k + 9h)(k + 9h)$  d.  $(k + 9h)(k - 9h)$

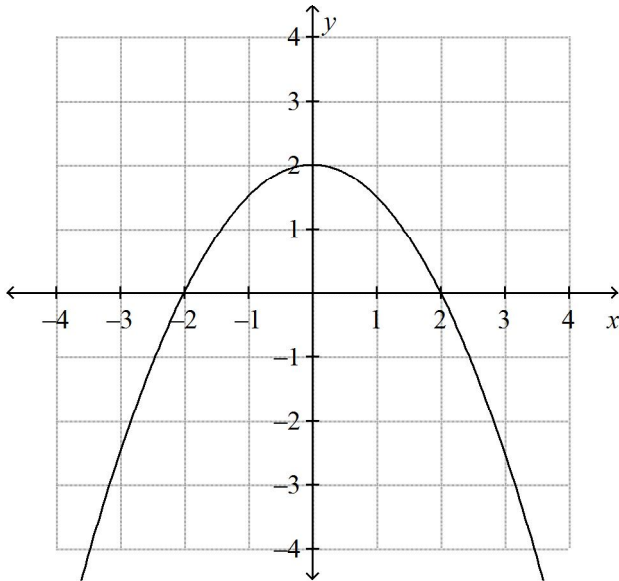
- \_\_\_\_\_ 64.  $25b^2 - 49$   
a.  $(5b + 7)(5b - 7)$  c.  $(5b + 7)(5b + 7)$   
b.  $(7b + 5)(7b - 5)$  d.  $(5b - 7)(5b - 7)$





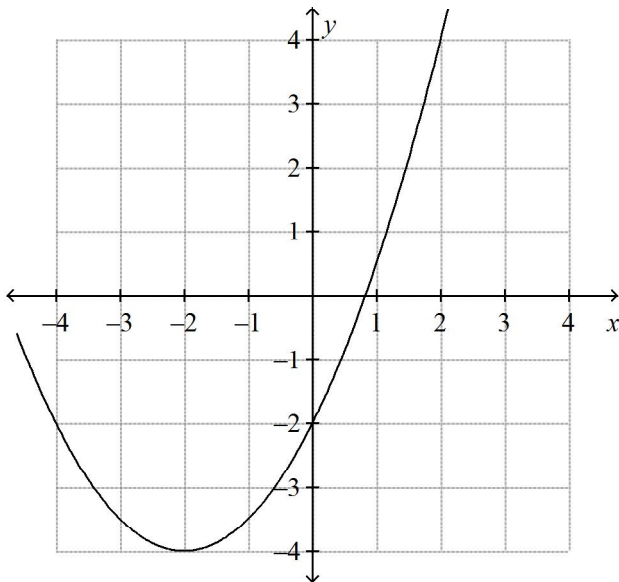
What are the coordinates of the vertex of the graph? Is it a maximum or minimum?

74.



- a.  $(2, 0)$ ; minimum  
b.  $(0, 2)$ ; minimum  
c.  $(2, 0)$ ; maximum  
d.  $(0, 2)$ ; maximum

75.



- a.  $(-4, -2)$ ; minimum  
b.  $(-2, -4)$ ; maximum  
c.  $(-2, -4)$ ; minimum  
d.  $(-4, -2)$ ; maximum

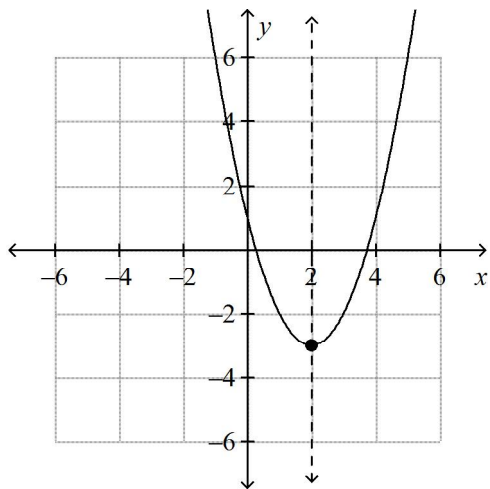
Order the group of quadratic functions from widest to narrowest graph.

- \_\_\_\_\_ 76.  $y = 3x^2, y = x^2, y = 2x^2$
- a.  $y = 2x^2, y = x^2, y = 3x^2$       c.  $y = x^2, y = 2x^2, y = 3x^2$   
b.  $y = 3x^2, y = 2x^2, y = x^2$       d.  $y = x^2, y = 3x^2, y = 2x^2$
- \_\_\_\_\_ 77.  $y = -5x^2, y = -x^2, y = -4x^2$
- a.  $y = -x^2, y = -5x^2, y = -4x^2$       c.  $y = -5x^2, y = -4x^2, y = -x^2$   
b.  $y = -x^2, y = -4x^2, y = -5x^2$       d.  $y = -4x^2, y = -x^2, y = -5x^2$
- \_\_\_\_\_ 78.  $y = \frac{1}{5}x^2, y = \frac{3}{5}x^2, y = -\frac{2}{3}x^2$
- a.  $y = \frac{1}{5}x^2, y = -\frac{2}{3}x^2, y = \frac{3}{5}x^2$       c.  $y = -\frac{2}{3}x^2, y = \frac{3}{5}x^2, y = \frac{1}{5}x^2$   
b.  $y = \frac{1}{5}x^2, y = \frac{3}{5}x^2, y = -\frac{2}{3}x^2$       d.  $y = \frac{3}{5}x^2, y = \frac{1}{5}x^2, y = -\frac{2}{3}x^2$
- \_\_\_\_\_ 79. If an object is dropped from a height of 144 feet, the function  $h(t) = -16t^2 + 144$  gives the height of the object after  $t$  seconds. When will the object hit the ground?
- a. 1.5 s      c. 6 s  
b. 3 s      d. 9 s
- \_\_\_\_\_ 80. If an object is dropped from a height of 116 feet, the function  $h(t) = -16t^2 + 116$  gives the height of the object after  $t$  seconds. When will the object hit the ground?
- a. 1.35 s      c. 10.77 s  
b. 5.39 s      d. 2.69 s

**Graph the function. Identify the vertex and axis of symmetry.**

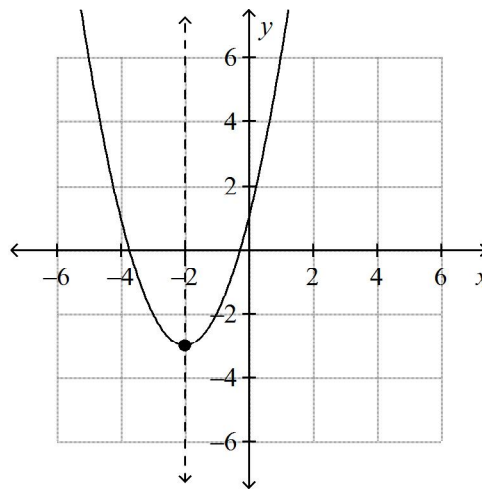
81.  $f(x) = x^2 + 4x + 1$

a.



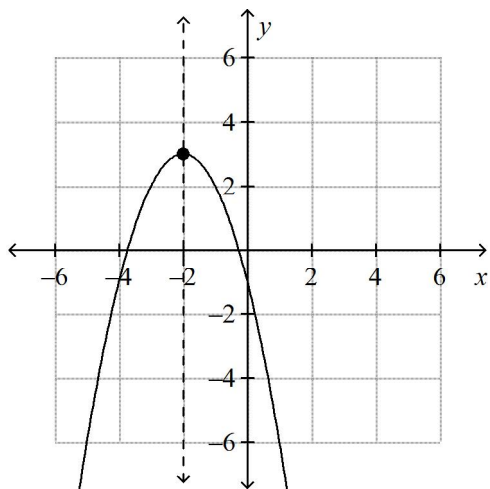
axis of symmetry:  $x = 2$   
vertex:  $(2, -3)$

c.



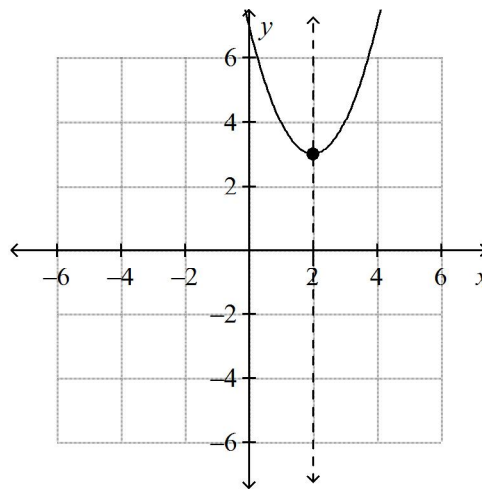
axis of symmetry:  $x = -2$   
vertex:  $(-2, -3)$

b.



axis of symmetry:  $x = -2$   
vertex:  $(-2, 3)$

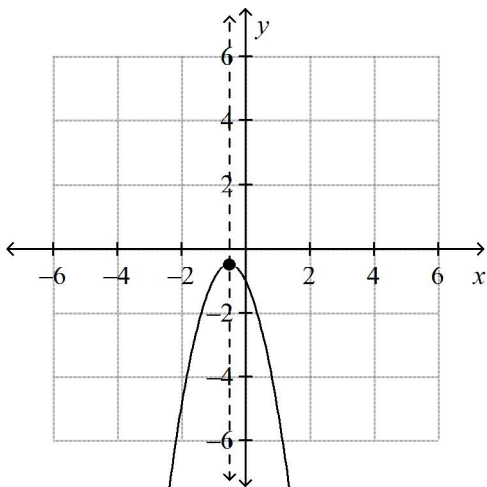
d.



axis of symmetry:  $x = 2$   
vertex:  $(2, 3)$

82.  $f(x) = -2x^2 + 2x - 1$

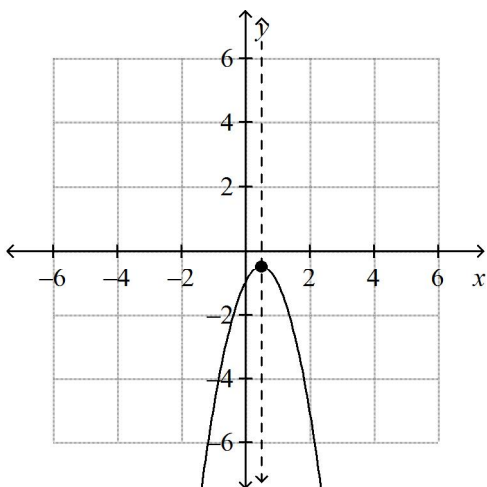
a.



axis of symmetry:  $x = -0.5$

vertex:  $(-0.5, -0.5)$

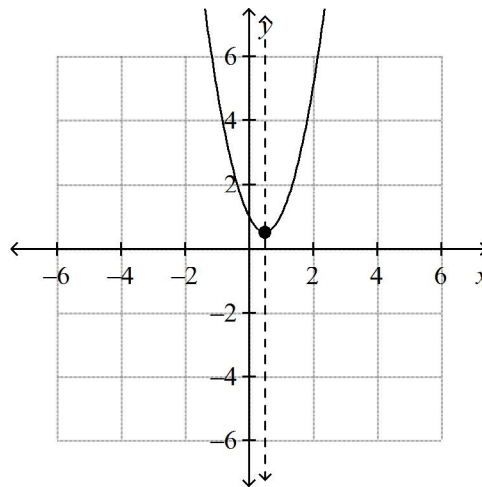
b.



axis of symmetry:  $x = 0.5$

vertex:  $(0.5, -0.5)$

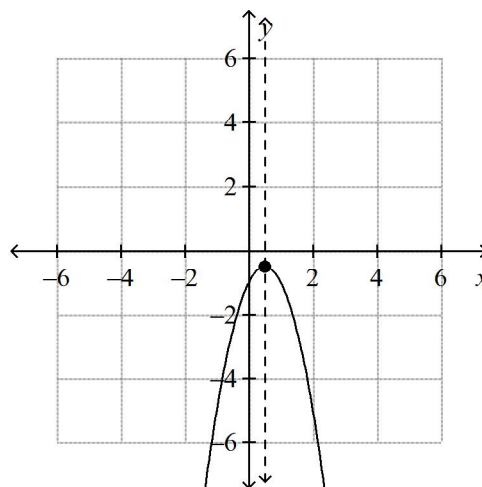
c.



axis of symmetry:  $x = 0.5$

vertex:  $(0.5, 0.5)$

d.



axis of symmetry:  $x = 0.5$

vertex:  $(0.5, 0.5)$

83. A ball is thrown into the air with an upward velocity of 28 ft/s. Its height  $h$  in feet after  $t$  seconds is given by the function  $h = -16t^2 + 28t + 7$ . How long does it take the ball to reach its maximum height? What is the ball's maximum height? Round to the nearest hundredth, if necessary.

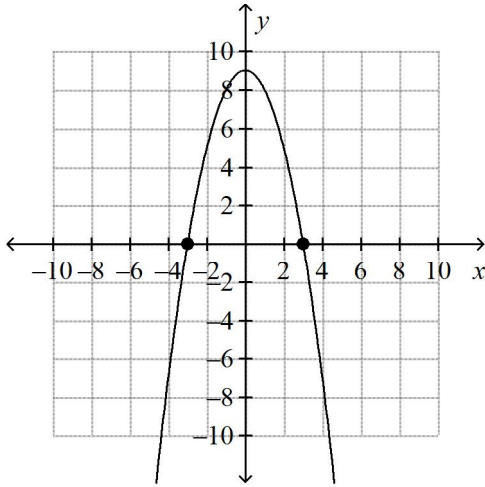
- a. 1.75 s; 7 ft      b. 0.88 s; 43.75 ft      c. 0.88 s; 17.5 ft      d. 0.88 s; 19.25 ft

84. A catapult launches a boulder with an upward velocity of 148 ft/s. The height of the boulder,  $h$ , in feet after  $t$  seconds is given by the function  $h = -16t^2 + 148t + 30$ . How long does it take the boulder to reach its maximum height? What is the boulder's maximum height? Round to the nearest hundredth, if necessary.

- a. 9.25 s; 30 ft      b. 4.63 s; 640.5 ft      c. 4.63 s; 1056.75 ft      d. 4.63 s; 372.25 ft

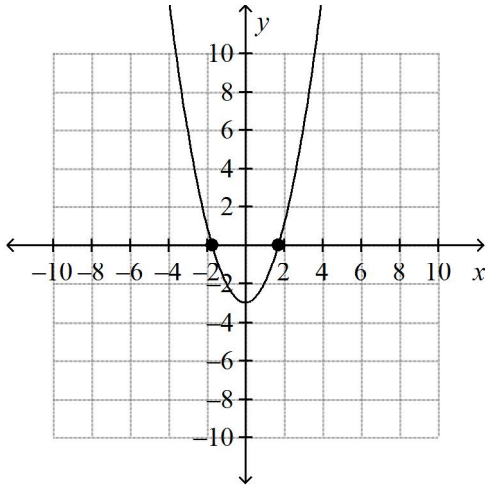
85. What are the solutions of the equation  $x^2 - 9 = 0$ ? Use a graph of the related function.

a.



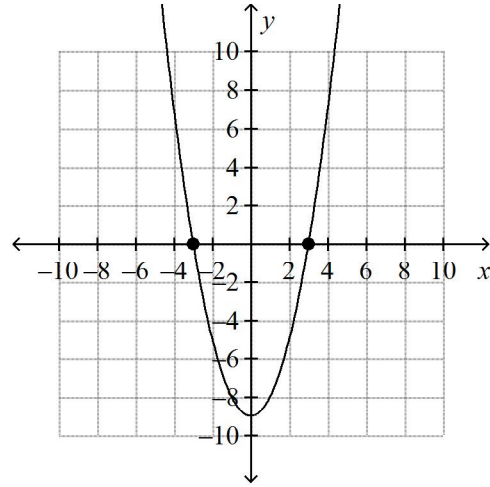
There are two solutions:  $-3$  and  $3$ .

b.



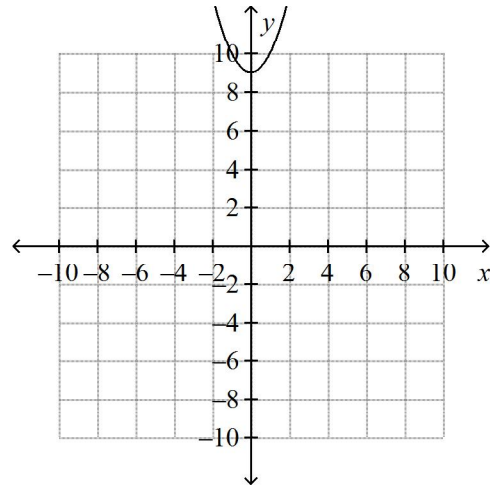
There are two solutions:  $\pm\sqrt{3}$ .

c.



There are two solutions:  $-3$  and  $3$ .

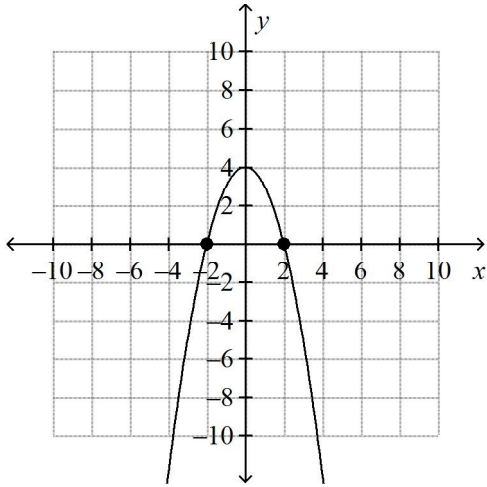
d.



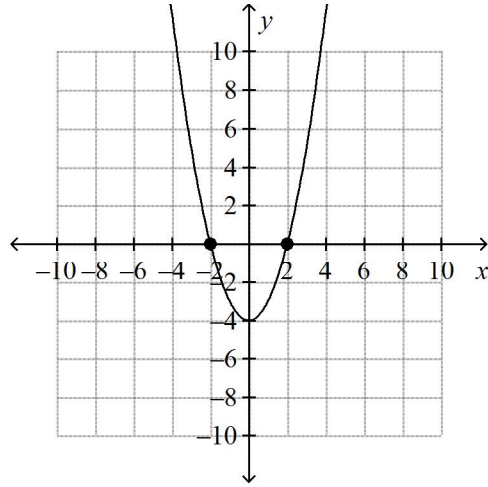
There are no real number solutions.

86. What are the solutions of the equation  $2x^2 = 8$ ? Use a graph of the related function.

a.



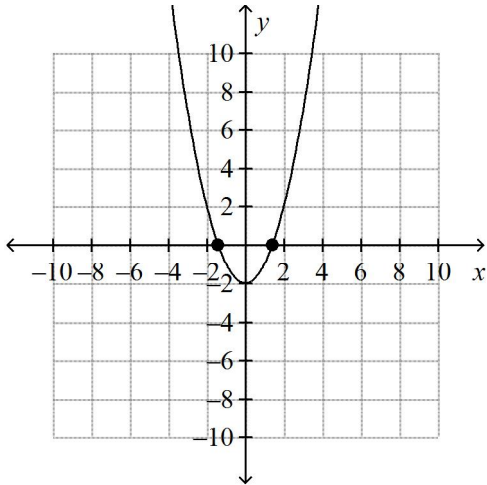
c.



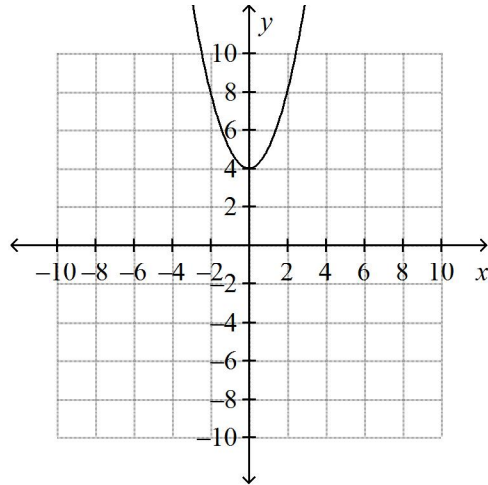
There are two solutions:  $-2$  and  $2$ .

There are two solutions:  $-2$  and  $2$ .

b.



d.



There are two solutions:  $\pm\sqrt{2}$ .

There are no real number solutions.

**Solve the equation using square roots.**

87.  $x^2 - 81 = 0$

a.  $-\sqrt{9}, \sqrt{9}$

b.  $-81, 81$

c.  $-9, 9$

d. no real number solutions

88.  $3x^2 - 147 = 0$

a.  $-49, 49$

b.  $-\sqrt{7}, \sqrt{7}$

c.  $-7, 7$

d. no real number solutions

- \_\_\_\_\_ 89.  $4x^2 - 328 = 72$   
 a.  $-\sqrt{10}, \sqrt{10}$  c.  $-10, 10$   
 b.  $-100, 100$  d. no real number solutions
- \_\_\_\_\_ 90. The area of a playground is 20 square yards. The length of the playground is 5 times longer than its width. Find the length and width of the playground.  
 a. length = 1 yd, width = 20 yd c. length = 10 yd, width = 2 yd  
 b. length = 2 yd, width = 10 yd d. length = 20 yd, width = 1 yd

**Solve the equation using the Zero-Product Property.**

- \_\_\_\_\_ 91.  $(x - 9)(x + 7) = 0$   
 a. 9, 7 c.  $-1, 1$   
 b.  $-9, -7$  d.  $9, -7$
- \_\_\_\_\_ 92.  $(2x - 4)(2x - 1) = 0$   
 a.  $2, -\frac{1}{2}$  c.  $-2, 2$   
 b.  $2, \frac{1}{2}$  d.  $-2, \frac{1}{2}$
- \_\_\_\_\_ 93.  $-9n(5n - 5) = 0$   
 a.  $-\frac{1}{9}, 1$  c.  $-\frac{1}{9}, -1$   
 b. 0, 1 d. 0,  $-1$

**What are the solutions of the equation?**

- \_\_\_\_\_ 94.  $z^2 - 6z - 27 = 0$   
 a. 3, 9 c.  $-3, 9$   
 b. 3,  $-9$  d.  $-3, -9$
- \_\_\_\_\_ 95.  $3z^2 + 3z - 6 = 0$   
 a. 1,  $-2$  c. 3,  $-2$   
 b. 1, 2 d. 3, 2
- \_\_\_\_\_ 96.  $c^2 - 4c = 0$   
 a. 0,  $-4$  c. 0, 4  
 b. 0,  $\sqrt{4}$  d.  $1, -\sqrt{4}$
- \_\_\_\_\_ 97.  $15 = 8x^2 - 14x$   
 a.  $-5, \frac{3}{8}$  b.  $-\frac{2}{5}, \frac{4}{3}$  c.  $-3, \frac{5}{8}$  d.  $-\frac{3}{4}, \frac{5}{2}$
- \_\_\_\_\_ 98.  $6x^2 - 17x + 13 = 20x^2 - 32$   
 a.  $\frac{5}{3}, \frac{9}{2}$  b.  $-\frac{5}{2}, \frac{9}{7}$  c.  $-\frac{5}{2}, -\frac{9}{7}$  d.  $-\frac{5}{3}, \frac{9}{2}$

- \_\_\_\_\_ 99.  $x^2 + 3x = 18$   
a. 3, -6                      b. -3, 6                      c. 4.42, -4.42                      d. 18.75, -21.75
- \_\_\_\_\_ 100.  $20x^2 + 27x + 9 = 0$   
a.  $\frac{3}{4}, \frac{3}{5}$                       b.  $-\frac{3}{4}, -\frac{3}{5}$                       c.  $-\frac{3}{4}, \frac{3}{5}$                       d.  $\frac{3}{4}, -\frac{3}{5}$
- \_\_\_\_\_ 101. Tasha is planning an expansion of a square flower garden in a city park. If each side of the original garden is increased by 7 m, the new total area of the garden will be 144 m<sup>2</sup>. Find the length of each side of the original garden.  
a. 19 m                      b. 12 m                      c. 5 m                      d.  $\sqrt{5}$  m
- \_\_\_\_\_ 102. The area of a playground is 266 yd<sup>2</sup>. The width of the playground is 5 yd longer than its length. Find the length and width of the playground.  
a. length = 19 yd, width = 24 yd                      c. length = 14 yd, width = 19 yd  
b. length = 19 yd, width = 14 yd                      d. length = 24 yd, width = 19 yd
- \_\_\_\_\_ 103. What is the value of  $c$  such that  $x^2 + 14x + c$  is a perfect-square trinomial?  
a. 98                      b. 7                      c. 196                      d. 49
- \_\_\_\_\_ 104. What is the value of  $c$  such that  $x^2 - 11x + c$  is a perfect-square trinomial?  
a. 121                      b.  $\frac{121}{4}$                       c.  $-\frac{11}{2}$                       d.  $\frac{121}{2}$

**Solve the equation by completing the square. Round to the nearest hundredth if necessary.**

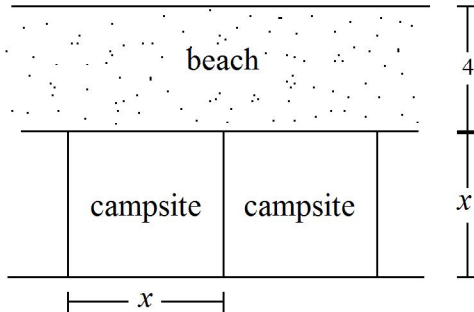
- \_\_\_\_\_ 105.  $x^2 + 7x = -12$   
a. 3, -4                      b. -3, -4                      c. 3, 4                      d. -3, 4
- \_\_\_\_\_ 106.  $x^2 + 10x = 18$   
a. -11.56, 1.56                      b. 11.56, 1.56                      c. -11.56, -1.56                      d. 11.56, -1.56
- \_\_\_\_\_ 107.  $x^2 + 2x - 8 = 0$   
a. 4, 2                      b. -4, 2                      c. 4, -2                      d. -4, -2
- \_\_\_\_\_ 108.  $x^2 + 9x - 14 = 0$   
a. 10.35, 1.35                      b. 10.35, -1.35                      c. -10.35, -1.35                      d. -10.35, 1.35
- \_\_\_\_\_ 109. A rocket is launched from atop a 105-foot cliff with an initial velocity of 156 ft/s. The height of the rocket above the ground at time  $t$  is given by  $h = -16t^2 + 156t + 105$ . When will the rocket hit the ground after it is launched? Round to the nearest tenth of a second.  
a. 4.9 s                      c. 0.6 s  
b. 9.8 s                      d. 10.4 s



Name: \_\_\_\_\_

ID: A

110. A campground consists of 5 square campsites arranged in a line along a beach. The distance from the edge of a campsite to the water at the end of the beach is 4 yd. The area of the campground, including the beach, is 950 sq yd. What is the width of one campsite?



- a. 13.93 yd                                      c. 10.35 yd  
 b. 11.93 yd                                      d. 14.35 yd

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

111.  $x^2 + 3 = -4x$   
 a. 1, 3                                      b. -1, -3                                      c. 1, -3                                      d. 1, -3
112.  $x^2 + 3 = 9x$   
 a. 0.35, -8.65                                      b. -0.35, -8.65                                      c. 0.35, 8.65                                      d. -0.35, 8.65
113. Which kind of function best models the data in the table? Use differences or ratios.

$x$	$y$
0	-1
1	-0.5
2	0
3	0.5
4	1

- a. linear    c. exponential  
 b. quadratic    d. none of these

\_\_\_ 114. Which kind of function best models the data in the table? Use differences or ratios.

$x$	$y$
0	1.7
1	6.8
2	27.2
3	108.8
4	435.2

- a. linear  
b. quadratic  
c. exponential  
d. none of these

\_\_\_ 115. Write an equation to model the data in the table.

$x$	$y$
0	2
1	5.9
2	9.8
3	13.7
4	17.6

- a.  $y = 3.9x^2 + 2$   
b.  $y = 3.9 \cdot 2^x$   
c.  $y = 2x$   
d.  $y = 3.9x + 2$

\_\_\_ 116. Write an equation to model the data in the table.

$x$	$y$
0	1.4
1	2.8
2	5.6
3	11.2
4	22.4

- a.  $y = 1.4 \cdot 2^x$   
b.  $y = 2x$   
c.  $y = 1.4x + 2$   
d.  $y = 1.4x^2 + 2$

- \_\_\_ 117. The table shows the estimated number of deer living in a forest over a five-year period. Which type of function best models the data? Write an equation to model the data.

Year	Estimated Population
0	93
1	59
2	37
3	23
4	15

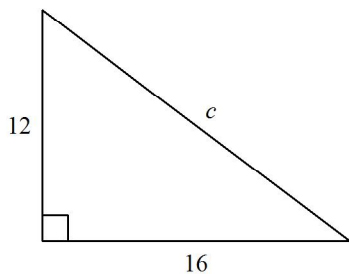
- a. quadratic;  $y = 0.63x^2 + 93$   
 b. quadratic;  $y = 93x^2 + 0.63$   
 c. linear;  $y = 0.63x + 93$   
 d. exponential;  $y = 93 \cdot 0.63^x$
- \_\_\_ 118. The table shows the height of a plant over time. Which type of function best models the data? Write an equation to model the data.

Year	Height (cm)
0	85
1	103
2	121
3	139
4	157

- a. quadratic;  $y = 18x^2 + 85$   
 b. quadratic;  $y = 85x^2 + 18$   
 c. linear;  $y = 18x + 85$   
 d. exponential;  $y = 85 \cdot 18^x$

**What is the length of the hypotenuse of the right triangle shown?**

- \_\_\_ 119.

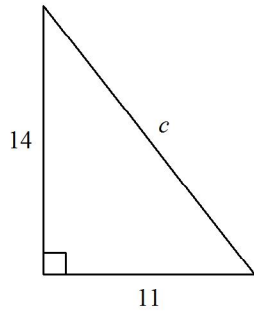


- a. 28                      b. 4                      c. 20                      d. 5.3

Name: \_\_\_\_\_

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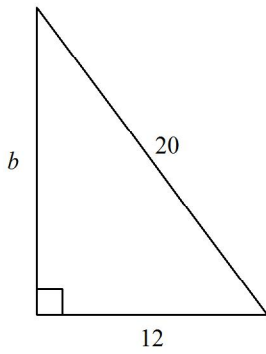
\_\_\_\_ 120.



- a. 10                      b. 17.8                      c. 625                      d. 5

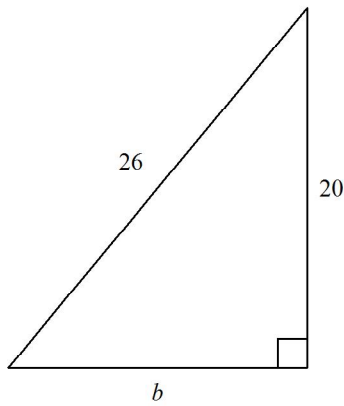
**What is the side length  $b$  in the triangle below?**

\_\_\_\_ 121.



- a. 16                      b. 8                      c. 2.8                      d. 23.3

\_\_\_\_ 122.



- a. 23                      b. 16.6                      c. 46                      d. 32.8



\_\_\_\_\_ 133.  $\sqrt{\frac{10}{81}}$

a.  $\frac{10}{9}$                       b.  $\frac{\sqrt{10}}{41}$                       c.  $9\sqrt{10}$                       d.  $\frac{\sqrt{10}}{9}$

\_\_\_\_\_ 134.  $\sqrt{\frac{63x^{15}y^9}{7xy^{11}}}$

a.  $\frac{8x^7y^4\sqrt{xy}}{\sqrt{7xy^{11}}}$                       b.  $\frac{3x^7}{y}$                       c.  $\frac{9x^7}{y}$                       d.  $9x^7y$

**Simplify the radical expression by rationalizing the denominator.**

\_\_\_\_\_ 135.  $\frac{4}{\sqrt{11}}$

a.  $11\sqrt{4}$                       b.  $4\sqrt{11}$                       c.  $\frac{4\sqrt{11}}{11}$                       d.  $\frac{\sqrt{121}}{11}$

\_\_\_\_\_ 136.  $\frac{2\sqrt{108}}{\sqrt{180y}}$

a.  $\frac{2\sqrt{15y}}{5y}$                       b.  $\frac{2}{\sqrt{72y}}$                       c.  $\frac{2\sqrt{540y}}{180y}$                       d.  $\frac{2\sqrt{180y}}{540}$

**Simplify the expression.**

\_\_\_\_\_ 137.  $\sqrt{3} + 4\sqrt{3}$

a.  $5\sqrt{6}$                       b.  $5\sqrt{3}$                       c.  $3\sqrt{6}$                       d.  $3\sqrt{3}$

\_\_\_\_\_ 138.  $\sqrt{5} - 2\sqrt{5}$

a.  $-\sqrt{5}$                       b.  $3\sqrt{5}$                       c.  $-\sqrt{10}$                       d.  $3\sqrt{10}$

\_\_\_\_\_ 139.  $2\sqrt{6} + 3\sqrt{96}$

a.  $14\sqrt{6}$                       b.  $14\sqrt{96}$                       c.  $5\sqrt{96}$                       d.  $50\sqrt{6}$

\_\_\_\_\_ 140.  $2\sqrt{6} - 6\sqrt{54}$

a.  $-4\sqrt{54}$                       b.  $-16\sqrt{54}$                       c.  $-52\sqrt{6}$                       d.  $-16\sqrt{6}$

\_\_\_\_\_ 141.  $(8 + \sqrt{11})(8 - \sqrt{11})$

a. 53                                      c. -57

b.  $75 + 16\sqrt{11}$                       d.  $64 + \sqrt{11}$

\_\_\_\_\_ 142.  $\sqrt{39}(\sqrt{6} - 4)$

a.  $\sqrt{45} - 4\sqrt{39}$

b.  $\sqrt{234} - 4$

c.  $\sqrt{234} - 4\sqrt{39}$

d.  $3\sqrt{26} - 4\sqrt{39}$

\_\_\_\_\_ 143.  $\frac{7}{\sqrt{11} - \sqrt{7}}$

a.  $\frac{7(\sqrt{11} + \sqrt{7})}{4}$

b.  $\frac{7(\sqrt{11} - \sqrt{7})}{4}$

c.  $\frac{7\sqrt{11} - 7\sqrt{11}}{\sqrt{4}}$

d.  $\frac{7\sqrt{11} + 7\sqrt{11}}{\sqrt{4}}$

\_\_\_\_\_ 144.  $\frac{\sqrt{2} + \sqrt{6}}{\sqrt{8} + \sqrt{6}}$

a.  $\frac{\sqrt{12} + 6 - \sqrt{16} - \sqrt{48}}{-2}$

b.  $\sqrt{3} - 1$

c.  $\frac{\sqrt{8}}{\sqrt{14}}$

d.  $\frac{1}{\sqrt{4}} + 1$

**Solve the equation. Check your solution.**

\_\_\_\_\_ 145.  $4 = \sqrt{p} - 2$

a.  $\sqrt{6}$

b. 36

c. 3

d. 6

\_\_\_\_\_ 146.  $\sqrt{q-9} = 7$

a. 40

b. 16

c. 58

d. 23

\_\_\_\_\_ 147. The velocity of sound in air is given by the equation  $v = 20\sqrt{273 + t}$  where  $v$  is the velocity in meters per second and  $t$  is the temperature in degrees Celsius. Find the temperature when the velocity of sound in air is 321 meters per second. Round to the nearest degree.

a. 4,879°C

b. 487°C

c. 5,425°C

d. -15°C

\_\_\_\_\_ 148. The formula  $v = \sqrt{64h}$  can be used to find the velocity  $v$  in feet per second of an object that has fallen  $h$  feet. Find how far the object has fallen if its velocity is 80 feet per second. Round your answer to the nearest hundredth.

a. 100 feet

b. 1.56 feet

c. 1.25 feet

d. 50 feet

**Solve the equation.**

\_\_\_\_\_ 149.  $\sqrt{5x-1} = \sqrt{4x+9}$

- a.  $\frac{1}{10}$                       b. 1                      c. 10                      d. -10

\_\_\_\_\_ 150.  $-2\sqrt{7x+4} = -3\sqrt{9x-3}$

- a.  $\frac{11}{53}$                       b.  $-\frac{43}{53}$                       c.  $\frac{43}{53}$                       d.  $-\frac{11}{53}$

**Solve the equation. Identify any extraneous solutions.**

\_\_\_\_\_ 151.  $x = \sqrt{4x+12}$

- a. 2 is a solution to the original equation. The value -6 is an extraneous solution.  
 b. 6 and -2 are solutions.  
 c. 6 and 2 are both extraneous solutions.  
 d. 6 is a solution to the original equation. The value -2 is an extraneous solution.

\_\_\_\_\_ 152.  $x = \sqrt{7x}$

- a. -7 is a solution of the original equation. 0 is an extraneous solution.  
 b. 7 is a solution of the original equation. 0 is an extraneous solution.  
 c. 0 and 7 are solutions of the original equation.  
 d. 0 is a solution of the original equation. 7 is an extraneous solution.

\_\_\_\_\_ 153.  $\sqrt{p} = -1$

- a. -1 is a solution of the original equation. 1 is an extraneous solution.  
 b. 1 is a solution of the original equation.  
 c. 1 is a solution of the original equation. -1 is an extraneous solution.  
 d. no solution

\_\_\_\_\_ 154.  $8\sqrt{9j} + 10 = 1$

- a.  $\frac{9}{64}$  is a solution of the original equation.  $-\frac{9}{64}$  is an extraneous solution  
 b.  $\frac{9}{64}$  is a solution of the original equation.  
 c.  $-\frac{9}{64}$  is a solution of the original equation.  $\frac{9}{64}$  is an extraneous solution  
 d. no solution

**What is the domain of the function?**

\_\_\_\_\_ 155.  $y = \sqrt{3x+3}$ .

- a.  $x \geq -1$                       b.  $x > 1$                       c.  $x \geq -1$                       d.  $x \geq 1$

\_\_\_\_\_ 156.  $y = \sqrt{4x-4}$ .

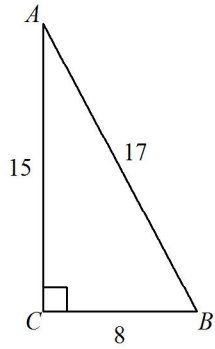
- a.  $x > -1$                       b.  $x \geq 1$                       c.  $x \geq -1$                       d.  $x \geq 1$



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\_\_\_ 157. What is  $\sin A$  for the triangle shown?



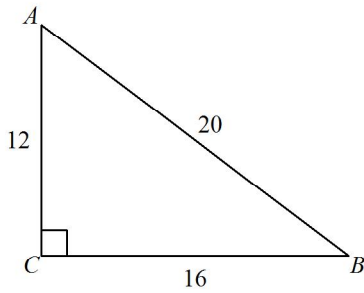
a.  $\frac{8}{15}$

b.  $\frac{17}{8}$

c.  $\frac{8}{17}$

d.  $\frac{15}{17}$

\_\_\_ 158. What is  $\cos A$  for the triangle shown?



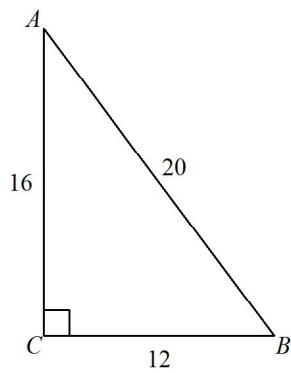
a.  $\frac{4}{3}$

b.  $\frac{4}{5}$

c.  $\frac{5}{4}$

d.  $\frac{3}{5}$

\_\_\_ 159. What is  $\tan A$  for the triangle shown?



a.  $\frac{4}{5}$

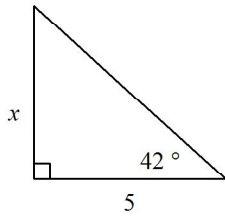
b.  $\frac{3}{4}$

c.  $\frac{3}{5}$

d.  $\frac{5}{3}$

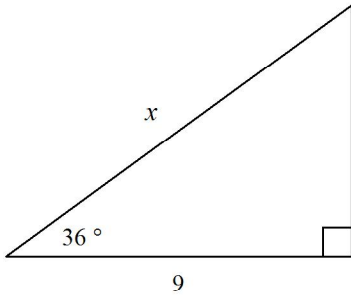
Find the value of  $x$  to the nearest tenth.

\_\_\_ 160.



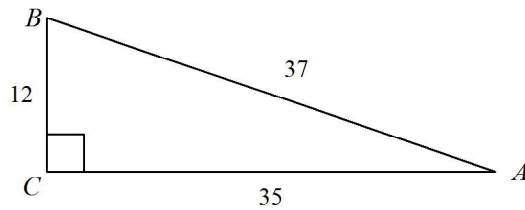
- a. 3.7                      b. 11.5                      c. 3.3                      d. 4.5

\_\_\_ 161.



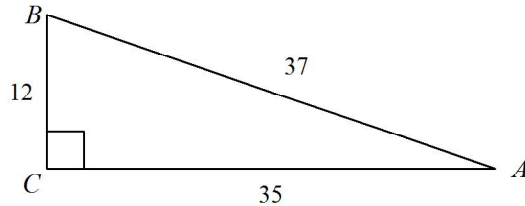
- a. -70.3                      b. 12.4                      c. 11.1                      d. 6.5

\_\_\_ 162. What is the measure of angle  $A$  in the triangle below?



- a.  $71.1^\circ$                       b.  $18.9^\circ$                       c.  $29.2^\circ$                       d.  $90^\circ$

\_\_\_ 163. What is the measure of angle  $B$  in the triangle below?



- a. 29.2                      b. 90                      c. 18.9                      d. 71.1

\_\_\_ 164. Suppose you live 4.4 miles from a hill. From your home you see a plane directly above the hill. Your angle of elevation to the plane is  $30^\circ$ . What is the plane's altitude?

- a. -28.2 miles              b. 3.8 miles              c. 2.2 miles              d. 2.5 miles

\_\_\_ 165. A ranger spots a forest fire while on a 45-meter observation tower. The angle of depression from the tower to the fire is  $12^\circ$ . To the nearest meter, how far is the fire from the base of the tower?

- a. 212 meters              b. 10 meters              c. 216 meters              d. 71 meters

\_\_\_ 166. An airplane over the Pacific Ocean sights an atoll at an  $13^\circ$  angle of depression. If the plane is 648 m above the water, how many kilometers is it from a point 648 m directly above the atoll?

- a. 2806.8 km              b. 2.81 km              c. 1399.5 km              d. 149.6 km



9. ANS: D                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   STA: MA.912.A.4.2  
TOP: 8-1 Problem 3 Classifying Polynomials  
KEY: monomial | degree of a monomial | polynomial | degree of a polynomial | standard form of a polynomial | trinomial                   DOK: DOK 1
10. ANS: A                   PTS: 1                   DIF: L2  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   STA: MA.912.A.4.2  
TOP: 8-1 Problem 3 Classifying Polynomials  
KEY: monomial | degree of a monomial | polynomial | degree of a polynomial | standard form of a polynomial | binomial | trinomial                   DOK: DOK 1
11. ANS: B                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   STA: MA.912.A.4.2  
TOP: 8-1 Problem 4 Adding Polynomials  
KEY: polynomial | standard form of a polynomial | trinomial                   DOK: DOK 1
12. ANS: D                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   STA: MA.912.A.4.2  
TOP: 8-1 Problem 5 Subtracting Polynomials  
KEY: polynomial | standard form of a polynomial | trinomial                   DOK: DOK 1
13. ANS: C                   PTS: 1                   DIF: L3  
REF: 8-1 Adding and Subtracting Polynomials  
OBJ: 8-1.1 To classify, add, and subtract polynomials                   STA: MA.912.A.4.2  
TOP: 8-1 Problem 5 Subtracting Polynomials  
KEY: polynomial | standard form of a polynomial | trinomial                   DOK: DOK 1
14. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.1 To multiply a monomial by a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 1 Multiplying a Monomial and a Trinomial                   KEY: polynomial | trinomial | monomial  
DOK: DOK 1
15. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.1 To multiply a monomial by a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 1 Multiplying a Monomial and a Trinomial                   KEY: polynomial | monomial | trinomial  
DOK: DOK 1
16. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.1 To multiply a monomial by a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 1 Multiplying a Monomial and a Trinomial                   DOK: DOK 1
17. ANS: B                   PTS: 1                   DIF: L2                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 2 Finding the Greatest Common Factor                   DOK: DOK 1
18. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 2 Finding the Greatest Common Factor                   DOK: DOK 1
19. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   STA: MA.912.A.4.2 | MA.912.A.4.3  
TOP: 8-2 Problem 3 Factoring Out a Monomial                   DOK: DOK 1

20. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   STA: MA.912.A.4.2|MA.912.A.4.3  
TOP: 8-2 Problem 3 Factoring Out a Monomial                   DOK: DOK 1
21. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-2 Multiplying and Factoring  
OBJ: 8-2.2 To factor a monomial from a polynomial                   STA: MA.912.A.4.2|MA.912.A.4.3  
TOP: 8-2 Problem 3 Factoring Out a Monomial                   DOK: DOK 1
22. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 1 Using the Distributive Property  
KEY: multiplying binomials                   DOK: DOK 1
23. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 1 Using the Distributive Property  
KEY: multiplying binomials                   DOK: DOK 1
24. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 3 Using FOIL  
KEY: multiplying binomials                   DOK: DOK 1
25. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 3 Using FOIL  
KEY: multiplying binomials                   DOK: DOK 1
26. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 5 Multiplying a Trinomial and a Binomial  
KEY: multiplying binomials                   DOK: DOK 1
27. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-3 Multiplying Binomials  
OBJ: 8-3.1 To multiply two binomials or a binomial by a trinomial  
STA: MA.912.A.4.2                   TOP: 8-3 Problem 5 Multiplying a Trinomial and a Binomial  
KEY: multiplying binomials                   DOK: DOK 1
28. ANS: A                   PTS: 1                   DIF: L2                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 1 Squaring a Binomial  
DOK: DOK 1
29. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 1 Squaring a Binomial  
DOK: DOK 1
30. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 1 Squaring a Binomial  
DOK: DOK 1
31. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 2 Applying Square of Binomials  
DOK: DOK 2

32. ANS: A                   PTS: 1                   DIF: L4                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 2 Applying Square of Binomials  
DOK: DOK 2
33. ANS: C                   PTS: 1                   DIF: L2                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2                   TOP: 8-4 Problem 3 Using Mental Math  
DOK: DOK 1
34. ANS: D                   PTS: 1                   DIF: L2                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2  
TOP: 8-4 Problem 4 Finding the Product of a Sum and Difference  
DOK: DOK 1
35. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2  
TOP: 8-4 Problem 4 Finding the Product of a Sum and Difference  
DOK: DOK 1
36. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2  
TOP: 8-4 Problem 4 Finding the Product of a Sum and Difference  
DOK: DOK 1
37. ANS: C                   PTS: 1                   DIF: L4                   REF: 8-4 Multiplying Special Cases  
OBJ: 8-4.1 To find the square of a binomial and to find the product of a sum and difference  
STA: MA.912.A.4.2  
TOP: 8-4 Problem 4 Finding the Product of a Sum and Difference  
DOK: DOK 1
38. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 1 Factoring  $x^2 + bx + c$  Where  $b > 0, c > 0$                    DOK: DOK 1
39. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 1 Factoring  $x^2 + bx + c$  Where  $b > 0, c > 0$                    DOK: DOK 1
40. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 2 Factoring  $x^2 + bx + c$  Where  $b < 0, c > 0$                    DOK: DOK 1
41. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 3 Factoring  $x^2 + bx + c$  Where  $c < 0$                    DOK: DOK 1
42. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 2 Factoring  $x^2 + bx + c$  Where  $b < 0, c > 0$                    DOK: DOK 1
43. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
TOP: 8-5 Problem 3 Factoring  $x^2 + bx + c$  Where  $c < 0$                    DOK: DOK 1

44. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
 OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-5 Problem 5 Factoring a Trinomial With Two Variables  
 DOK: DOK 1
45. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-5 Factoring  $x^2 + bx + c$   
 OBJ: 8-5.1 To factor trinomials of the form  $x^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-5 Problem 5 Factoring a Trinomial With Two Variables  
 DOK: DOK 1
46. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 1 Factoring When ac Is Positive                   DOK: DOK 1
47. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 1 Factoring When ac Is Positive                   DOK: DOK 1
48. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 1 Factoring When ac Is Positive                   DOK: DOK 1
49. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 1 Factoring When ac Is Positive                   DOK: DOK 1
50. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 2 Factoring When ac Is Negative                   DOK: DOK 1
51. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 2 Factoring When ac Is Negative                   DOK: DOK 1
52. ANS: C                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 2 Factoring When ac Is Negative                   DOK: DOK 1
53. ANS: A                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 2 Factoring When ac Is Negative                   DOK: DOK 1
54. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 4 Factoring Out a Monomial First                   DOK: DOK 1
55. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-6 Factoring  $ax^2 + bx + c$   
 OBJ: 8-6.1 To factor trinomials of the form  $ax^2 + bx + c$                    STA: MA.912.A.4.3  
 TOP: 8-6 Problem 4 Factoring Out a Monomial First                   DOK: DOK 1
56. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 1 Factoring a Perfect-Square Trinomial  
 KEY: perfect-square trinomial                   DOK: DOK 1
57. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 1 Factoring a Perfect-Square Trinomial  
 KEY: perfect-square trinomial                   DOK: DOK 1



58. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 2 Factoring to Find a Length  
 KEY: perfect-square trinomial                   DOK: DOK 2
59. ANS: D                   PTS: 1                   DIF: L4                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 2 Factoring to Find a Length  
 KEY: perfect-square trinomial                   DOK: DOK 2
60. ANS: A                   PTS: 1                   DIF: L2                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 3 Factoring a Difference of Two Squares  
 KEY: difference of two squares                   DOK: DOK 1
61. ANS: C                   PTS: 1                   DIF: L2                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 3 Factoring a Difference of Two Squares  
 KEY: difference of two squares                   DOK: DOK 1
62. ANS: B                   PTS: 1                   DIF: L4                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 4 Factoring a Difference of Two Squares  
 KEY: difference of two squares                   DOK: DOK 1
63. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 4 Factoring a Difference of Two Squares  
 KEY: difference of two squares                   DOK: DOK 1
64. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 4 Factoring a Difference of Two Squares  
 KEY: difference of two squares                   DOK: DOK 1
65. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 5 Factoring Out a Common Factor  
 KEY: difference of two squares                   DOK: DOK 1
66. ANS: A                   PTS: 1                   DIF: L4                   REF: 8-7 Factoring Special Cases  
 OBJ: 8-7.1 To factor perfect-square trinomials and the differences of two squares  
 STA: MA.912.A.4.3                   TOP: 8-7 Problem 5 Factoring Out a Common Factor  
 KEY: perfect-square trinomial                   DOK: DOK 1
67. ANS: D                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
 OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
 TOP: 8-8 Problem 1 Factoring a Cubic Polynomial                   KEY: factoring by grouping  
 DOK: DOK 1
68. ANS: B                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
 OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
 TOP: 8-8 Problem 1 Factoring a Cubic Polynomial                   KEY: factoring by grouping  
 DOK: DOK 1

69. ANS: C                   PTS: 1                   DIF: L2                   REF: 8-8 Factoring by Grouping  
OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
TOP: 8-8 Problem 1 Factoring a Cubic Polynomial                   KEY: factoring by grouping  
DOK: DOK 1
70. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
TOP: 8-8 Problem 2 Factoring a Polynomial Completely                   KEY: factoring by grouping  
DOK: DOK 1
71. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
TOP: 8-8 Problem 2 Factoring a Polynomial Completely                   KEY: factoring by grouping  
DOK: DOK 1
72. ANS: C                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
TOP: 8-8 Problem 3 Finding the Dimensions of a Rectangular Prism  
KEY: factoring by grouping                   DOK: DOK 1
73. ANS: A                   PTS: 1                   DIF: L3                   REF: 8-8 Factoring by Grouping  
OBJ: 8-8.1 To factor higher-degree polynomials by grouping                   STA: MA.912.A.4.3  
TOP: 8-8 Problem 3 Finding the Dimensions of a Rectangular Prism  
KEY: factoring by grouping                   DOK: DOK 1
74. ANS: D                   PTS: 1                   DIF: L3  
REF: 9-1 Quadratic Graphs and Their Properties  
OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8                   TOP: 9-1 Problem 1 Identifying a Vertex  
KEY: quadratic function | parabola | maximum | minimum | vertex  
DOK: DOK 1
75. ANS: C                   PTS: 1                   DIF: L3  
REF: 9-1 Quadratic Graphs and Their Properties  
OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8                   TOP: 9-1 Problem 1 Identifying a Vertex  
KEY: quadratic function | parabola | maximum | minimum | vertex  
DOK: DOK 1
76. ANS: C                   PTS: 1                   DIF: L2  
REF: 9-1 Quadratic Graphs and Their Properties  
OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
TOP: 9-1 Problem 3 Comparing Widths of Parabolas                   KEY: quadratic function | parabola  
DOK: DOK 1
77. ANS: B                   PTS: 1                   DIF: L3  
REF: 9-1 Quadratic Graphs and Their Properties  
OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
TOP: 9-1 Problem 3 Comparing Widths of Parabolas                   KEY: quadratic function | parabola  
DOK: DOK 1

78. ANS: B                   PTS: 1                   DIF: L3  
 REF: 9-1 Quadratic Graphs and Their Properties  
 OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-1 Problem 3 Comparing Widths of Parabolas                   KEY: quadratic function | parabola  
 DOK: DOK 1
79. ANS: B                   PTS: 1                   DIF: L3  
 REF: 9-1 Quadratic Graphs and Their Properties  
 OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-1 Problem 5 Using the Falling Object Model                   KEY: quadratic function | parabola  
 DOK: DOK 2
80. ANS: D                   PTS: 1                   DIF: L4  
 REF: 9-1 Quadratic Graphs and Their Properties  
 OBJ: 9-1.1 To graph quadratic functions of the form  $y = ax^2$  and  $y = ax^2 + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-1 Problem 5 Using the Falling Object Model                   KEY: quadratic function | parabola  
 DOK: DOK 2
81. ANS: C                   PTS: 1                   DIF: L3                   REF: 9-2 Quadratic Functions  
 OBJ: 9-2.1 To graph quadratic functions of the form  $y = ax^2 + bx + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-2 Problem 1 Graphing  $y = ax^2 + bx + c$                    DOK: DOK 1
82. ANS: B                   PTS: 1                   DIF: L3                   REF: 9-2 Quadratic Functions  
 OBJ: 9-2.1 To graph quadratic functions of the form  $y = ax^2 + bx + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-2 Problem 1 Graphing  $y = ax^2 + bx + c$                    DOK: DOK 1
83. ANS: D                   PTS: 1                   DIF: L3                   REF: 9-2 Quadratic Functions  
 OBJ: 9-2.1 To graph quadratic functions of the form  $y = ax^2 + bx + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-2 Problem 2 Using the Vertical Motion Model                   DOK: DOK 2
84. ANS: D                   PTS: 1                   DIF: L3                   REF: 9-2 Quadratic Functions  
 OBJ: 9-2.1 To graph quadratic functions of the form  $y = ax^2 + bx + c$   
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-2 Problem 2 Using the Vertical Motion Model                   DOK: DOK 2
85. ANS: C                   PTS: 1                   DIF: L3                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8                   TOP: 9-3 Problem 1 Solving by Graphing  
 KEY: quadratic equation | root of an equation | zero of a function  
 DOK: DOK 1
86. ANS: C                   PTS: 1                   DIF: L4                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8                   TOP: 9-3 Problem 1 Solving by Graphing  
 KEY: quadratic equation | root of an equation | zero of a function  
 DOK: DOK 1

87. ANS: C                   PTS: 1                   DIF: L2                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-3 Problem 2 Solving Using Square Roots  
 KEY: quadratic equation | root of an equation                   DOK: DOK 1
88. ANS: C                   PTS: 1                   DIF: L3                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-3 Problem 2 Solving Using Square Roots  
 KEY: quadratic equation | root of an equation                   DOK: DOK 1
89. ANS: C                   PTS: 1                   DIF: L4                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-3 Problem 2 Solving Using Square Roots  
 KEY: quadratic equation | root of an equation                   DOK: DOK 1
90. ANS: C                   PTS: 1                   DIF: L3                   REF: 9-3 Solving Quadratic Equations  
 OBJ: 9-3.1 To solve quadratic equations by graphing and using square roots  
 STA: MA.912.A.7.1|MA.912.A.7.6|MA.912.A.7.8  
 TOP: 9-3 Problem 3 Choosing a Reasonable Solution  
 KEY: quadratic equation | root of an equation                   DOK: DOK 2
91. ANS: D                   PTS: 1                   DIF: L2  
 REF: 9-4 Factoring to Solve Quadratic Equations  
 OBJ: 9-4.1 To solve quadratic equations by factoring  
 STA: MA.912.A.1.8|MA.912.A.7.2|MA.912.A.7.8  
 TOP: 9-4 Problem 1 Using the Zero-Product Property                   KEY: Zero-Product Property  
 DOK: DOK 1
92. ANS: B                   PTS: 1                   DIF: L3  
 REF: 9-4 Factoring to Solve Quadratic Equations  
 OBJ: 9-4.1 To solve quadratic equations by factoring  
 STA: MA.912.A.1.8|MA.912.A.7.2|MA.912.A.7.8  
 TOP: 9-4 Problem 1 Using the Zero-Product Property                   KEY: Zero-Product Property  
 DOK: DOK 1
93. ANS: B                   PTS: 1                   DIF: L3  
 REF: 9-4 Factoring to Solve Quadratic Equations  
 OBJ: 9-4.1 To solve quadratic equations by factoring  
 STA: MA.912.A.1.8|MA.912.A.7.2|MA.912.A.7.8  
 TOP: 9-4 Problem 1 Using the Zero-Product Property                   KEY: Zero-Product Property  
 DOK: DOK 1
94. ANS: C                   PTS: 1                   DIF: L3  
 REF: 9-4 Factoring to Solve Quadratic Equations  
 OBJ: 9-4.1 To solve quadratic equations by factoring  
 STA: MA.912.A.1.8|MA.912.A.7.2|MA.912.A.7.8                   TOP: 9-4 Problem 2 Solving by Factoring  
 KEY: Zero-Product Property                   DOK: DOK 2

95. ANS: A                   PTS: 1                   DIF: L4  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8                   TOP: 9-4 Problem 2 Solving by Factoring  
KEY: Zero-Product Property                   DOK: DOK 2
96. ANS: C                   PTS: 1                   DIF: L2  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8                   TOP: 9-4 Problem 2 Solving by Factoring  
KEY: Zero-Product Property                   DOK: DOK 1
97. ANS: D                   PTS: 1                   DIF: L3  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 3 Writing in Standard Form                   KEY: Zero-Product Property  
DOK: DOK 1
98. ANS: B                   PTS: 1                   DIF: L4  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 3 Writing in Standard Form                   KEY: Zero-Product Property  
DOK: DOK 2
99. ANS: A                   PTS: 1                   DIF: L3  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 3 Writing in Standard Form                   KEY: Zero-Product Property  
DOK: DOK 2
100. ANS: B                   PTS: 1                   DIF: L3  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 3 Writing in Standard Form                   KEY: Zero-Product Property  
DOK: DOK 2
101. ANS: C                   PTS: 1                   DIF: L3  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 4 Using Factoring to Solve a Real-World Problem  
KEY: Zero-Product Property                   DOK: DOK 2
102. ANS: C                   PTS: 1                   DIF: L3  
REF: 9-4 Factoring to Solve Quadratic Equations  
OBJ: 9-4.1 To solve quadratic equations by factoring  
STA: MA.912.A.1.8| MA.912.A.7.2| MA.912.A.7.8  
TOP: 9-4 Problem 4 Using Factoring to Solve a Real-World Problem  
KEY: Zero-Product Property                   DOK: DOK 2

103. ANS: D           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 1 Finding c to Complete the Square  
 KEY: completing the square           DOK: DOK 1
104. ANS: B           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 1 Finding c to Complete the Square  
 KEY: completing the square           DOK: DOK 1
105. ANS: B           PTS: 1           DIF: L2           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 2 Solving  $x^2 + bx = c$   
 KEY: completing the square           DOK: DOK 1
106. ANS: A           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 2 Solving  $x^2 + bx = c$   
 KEY: completing the square           DOK: DOK 1
107. ANS: B           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 3 Solving  $x^2 + bx + c = 0$   
 KEY: completing the square           DOK: DOK 1
108. ANS: D           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 3 Solving  $x^2 + bx + c = 0$   
 KEY: completing the square           DOK: DOK 1
109. ANS: D           PTS: 1           DIF: L2           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 4 Completing the square when  $a < 1$   
 KEY: completing the square           DOK: DOK 1
110. ANS: B           PTS: 1           DIF: L3           REF: 9-5 Completing the Square  
 OBJ: 9-5.1 To solve quadratic equations by completing the square  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-5 Problem 4 Completing the square when  $a < 1$   
 KEY: completing the square           DOK: DOK 3
111. ANS: B           PTS: 1           DIF: L3  
 REF: 9-6 The Quadratic Formula and the Discriminant  
 OBJ: 9-6.1 To solve quadratic equations using the quadratic formula  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-6 Problem 1 Using the Quadratic Formula  
 KEY: quadratic formula           DOK: DOK 1
112. ANS: C           PTS: 1           DIF: L3  
 REF: 9-6 The Quadratic Formula and the Discriminant  
 OBJ: 9-6.1 To solve quadratic equations using the quadratic formula  
 STA: MA.912.A.7.2| MA.912.A.7.8       TOP: 9-6 Problem 1 Using the Quadratic Formula  
 KEY: quadratic formula           DOK: DOK 1

113. ANS: A                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13  
TOP: 9-7 Problem 2 Choosing a Model Using Differences or Ratios  
DOK: DOK 1
114. ANS: C                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13  
TOP: 9-7 Problem 2 Choosing a Model Using Differences or Ratios  
DOK: DOK 1
115. ANS: D                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13                   TOP: 9-7 Problem 3 Modeling Data  
DOK: DOK 1
116. ANS: A                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13                   TOP: 9-7 Problem 3 Modeling Data  
DOK: DOK 1
117. ANS: D                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13                   TOP: 9-7 Problem 4 Modeling Real World Data  
DOK: DOK 2
118. ANS: C                   PTS: 1                   DIF: L3  
REF: 9-7 Linear, Quadratic, and Exponential Models  
OBJ: 9-7.1 To choose a linear, quadratic, or exponential model for data  
STA: MA.912.A.2.13                   TOP: 9-7 Problem 4 Modeling Real World Data  
DOK: DOK 2
119. ANS: C                   PTS: 1                   DIF: L2                   REF: 10-1 The Pythagorean Theorem  
OBJ: 10-1.1 To solve problems using the Pythagorean Theorem  
STA: MA.912.A.7.8                   TOP: 10-1 Problem 1 Finding the Length of a Hypotenuse  
KEY: Pythagorean Theorem | hypotenuse                   DOK: DOK 1
120. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-1 The Pythagorean Theorem  
OBJ: 10-1.1 To solve problems using the Pythagorean Theorem  
STA: MA.912.A.7.8                   TOP: 10-1 Problem 1 Finding the Length of a Hypotenuse  
KEY: Pythagorean Theorem | hypotenuse                   DOK: DOK 1
121. ANS: A                   PTS: 1                   DIF: L2                   REF: 10-1 The Pythagorean Theorem  
OBJ: 10-1.1 To solve problems using the Pythagorean Theorem  
STA: MA.912.A.7.8                   TOP: 10-1 Problem 2 Finding the Length of a Leg  
KEY: Pythagorean Theorem | leg                   DOK: DOK 1

122. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-1 The Pythagorean Theorem  
 OBJ: 10-1.1 To solve problems using the Pythagorean Theorem  
 STA: MA.912.A.7.8                   TOP: 10-1 Problem 2 Finding the Length of a Leg  
 KEY: Pythagorean Theorem | leg                   DOK: DOK 1
123. ANS: A                   PTS: 1                   DIF: L2                   REF: 10-1 The Pythagorean Theorem  
 OBJ: 10-1.2 To identify right triangles                   STA: MA.912.A.7.8  
 TOP: 10-1 Problem 3 Identifying Right Triangles                   KEY: converse | Pythagorean Theorem  
 DOK: DOK 2
124. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-1 The Pythagorean Theorem  
 OBJ: 10-1.2 To identify right triangles                   STA: MA.912.A.7.8  
 TOP: 10-1 Problem 3 Identifying Right Triangles                   KEY: converse | Pythagorean Theorem  
 DOK: DOK 2
125. ANS: C                   PTS: 1                   DIF: L2                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 1 Removing Perfect-Square Factors  
 KEY: radical expression                   DOK: DOK 1
126. ANS: C                   PTS: 1                   DIF: L3                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 1 Removing Perfect-Square Factors  
 KEY: radical expression                   DOK: DOK 1
127. ANS: C                   PTS: 1                   DIF: L2                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 2 Removing Variable Factors  
 KEY: radical expression                   DOK: DOK 1
128. ANS: B                   PTS: 1                   DIF: L2                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 2 Removing Variable Factors  
 KEY: radical expression                   DOK: DOK 1
129. ANS: C                   PTS: 1                   DIF: L4                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 2 Removing Variable Factors  
 KEY: radical expression                   DOK: DOK 1
130. ANS: C                   PTS: 1                   DIF: L2                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 3 Multiplying Two Radical Expressions  
 KEY: radical expression                   DOK: DOK 1
131. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 3 Multiplying Two Radical Expressions  
 KEY: radical expression                   DOK: DOK 1
132. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 5 Simplifying Fractions Within Radicals  
 KEY: radical expression                   DOK: DOK 1



133. ANS: D           PTS: 1           DIF: L3           REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 5 Simplifying Fractions Within Radicals  
 KEY: radical expression           DOK: DOK 1
134. ANS: B           PTS: 1           DIF: L4           REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 5 Simplifying Fractions Within Radicals  
 KEY: radical expression           DOK: DOK 1
135. ANS: C           PTS: 1           DIF: L2           REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 6 Rationalizing Denominators  
 KEY: radical expression           DOK: DOK 1
136. ANS: A           PTS: 1           DIF: L3           REF: 10-2 Simplifying Radicals  
 OBJ: 10-2.1 To simplify radicals involving products and quotients  
 STA: MA.912.A.6.1                   TOP: 10-2 Problem 6 Rationalizing Denominators  
 KEY: radical expression           DOK: DOK 2
137. ANS: B           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.1 To simplify sums and differences of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 1 Combining Like Radicals  
 KEY: like radicals   DOK: DOK 1
138. ANS: A           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.1 To simplify sums and differences of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 1 Combining Like Radicals  
 KEY: like radicals   DOK: DOK 1
139. ANS: A           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.1 To simplify sums and differences of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 2 Simplifying to Combine Like Radicals  
 KEY: like radicals   DOK: DOK 1
140. ANS: D           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.1 To simplify sums and differences of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 2 Simplifying to Combine Like Radicals  
 KEY: like radicals   DOK: DOK 1
141. ANS: A           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.2 To simplify products and quotients of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 3 Multiplying Radical Expressions  
 KEY: radical expression           DOK: DOK 1
142. ANS: D           PTS: 1           DIF: L3  
 REF: 10-3 Operations With Radical Expressions  
 OBJ: 10-3.2 To simplify products and quotients of radical expressions  
 STA: MA.912.A.6.2                   TOP: 10-3 Problem 3 Multiplying Radical Expressions  
 KEY: radical expression           DOK: DOK 1

143. ANS: A                   PTS: 1                   DIF: L3  
REF: 10-3 Operations With Radical Expressions  
OBJ: 10-3.2 To simplify products and quotients of radical expressions  
STA: MA.912.A.6.2  
TOP: 10-3 Problem 4 Rationalizing a Denominator Using Conjugates  
KEY: radical expression                   DOK: DOK 1
144. ANS: B                   PTS: 1                   DIF: L3  
REF: 10-3 Operations With Radical Expressions  
OBJ: 10-3.2 To simplify products and quotients of radical expressions  
STA: MA.912.A.6.2  
TOP: 10-3 Problem 4 Rationalizing a Denominator Using Conjugates  
KEY: radical expression                   DOK: DOK 1
145. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 1 Solving by Isolating the Radical                   KEY: radical equation  
DOK: DOK 1
146. ANS: C                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 1 Solving by Isolating the Radical                   KEY: radical equation  
DOK: DOK 1
147. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 2 Using a Radical Equation                   KEY: radical equation  
DOK: DOK 2
148. ANS: A                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 2 Using a Radical Equation                   KEY: radical equation  
DOK: DOK 1
149. ANS: C                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 3 Solving With Radical Expressions on Both Sides  
KEY: radical equation                   DOK: DOK 1
150. ANS: C                   PTS: 1                   DIF: L4                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.1 To solve equations containing radicals                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 3 Solving With Radical Expressions on Both Sides  
KEY: radical equation                   DOK: DOK 1
151. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.2 To identify extraneous solutions                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 4 Identifying Extraneous Solutions  
KEY: radical equation | extraneous solution                   DOK: DOK 1
152. ANS: C                   PTS: 1                   DIF: L2                   REF: 10-4 Solving Radical Equations  
OBJ: 10-4.2 To identify extraneous solutions                   STA: MA.912.A.6.2  
TOP: 10-4 Problem 4 Identifying Extraneous Solutions  
KEY: radical equation | extraneous solution                   DOK: DOK 1

153. ANS: D                   PTS: 1                   DIF: L2                   REF: 10-4 Solving Radical Equations  
 OBJ: 10-4.2 To identify extraneous solutions                   STA: MA.912.A.6.2  
 TOP: 10-4 Problem 5 Identifying Equations With No Solution  
 KEY: radical equation | extraneous solution                   DOK: DOK 1
154. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-4 Solving Radical Equations  
 OBJ: 10-4.2 To identify extraneous solutions                   STA: MA.912.A.6.2  
 TOP: 10-4 Problem 5 Identifying Equations With No Solution  
 KEY: radical equation | extraneous solution                   DOK: DOK 1
155. ANS: C                   PTS: 1                   DIF: L3  
 REF: 10-5 Graphing Square Root Functions  
 OBJ: 10-5.1 To graph square root functions  
 TOP: 10-5 Problem 1 Finding the Domain of a Square Root Function  
 KEY: square root function                   DOK: DOK 1
156. ANS: B                   PTS: 1                   DIF: L3  
 REF: 10-5 Graphing Square Root Functions  
 OBJ: 10-5.1 To graph square root functions  
 TOP: 10-5 Problem 1 Finding the Domain of a Square Root Function  
 KEY: square root function                   DOK: DOK 1
157. ANS: C                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 1 Finding Trigonometric Ratios                   KEY: sine | trigonometric ratios  
 DOK: DOK 1
158. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 1 Finding Trigonometric Ratios                   KEY: cosine | trigonometric ratios  
 DOK: DOK 1
159. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 1 Finding Trigonometric Ratios                   KEY: tangent | trigonometric ratios  
 DOK: DOK 1
160. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 3 Finding a Missing Side Length                   KEY: trigonometric ratios  
 DOK: DOK 1
161. ANS: C                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 3 Finding a Missing Side Length                   KEY: trigonometric ratios  
 DOK: DOK 1
162. ANS: B                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 4 Finding the Measures of Angles                   KEY: trigonometric ratios  
 DOK: DOK 1
163. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
 OBJ: 10-6.1 To find and use trigonometric ratios  
 TOP: 10-6 Problem 4 Finding the Measures of Angles                   KEY: trigonometric ratios  
 DOK: DOK 1

164. ANS: D                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
OBJ: 10-6.1 To find and use trigonometric ratios  
TOP: 10-6 Problem 5 Using an Angle of Elevation or Depression  
KEY: angle of elevation | trigonometric ratios                   DOK: DOK 2
165. ANS: A                   PTS: 1                   DIF: L3                   REF: 10-6 Trigonometric Ratios  
OBJ: 10-6.1 To find and use trigonometric ratios  
TOP: 10-6 Problem 5 Using an Angle of Elevation or Depression  
KEY: angle of depression | trigonometric ratios                   DOK: DOK 2
166. ANS: B                   PTS: 1                   DIF: L4                   REF: 10-6 Trigonometric Ratios  
OBJ: 10-6.1 To find and use trigonometric ratios  
TOP: 10-6 Problem 5 Using an Angle of Elevation or Depression  
KEY: angle of depression | trigonometric ratios                   DOK: DOK 2